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ABSTRACT

Unified organizational systems with integrated information systems are required to deliver effective referral and remedial services to children who are experiencing learning problems. However, such organized systems do not exist widely enough in our schools. The purpose of the project was to develop a consensually derived data-referral system for delivering educational services in a model school district through the application of systems analysis and design techniques. In cooperation with educational personnel from the model school district, the authors carried out a four-phase system projected over a two year period. The result of the project was the development of a data-referral system entitled the Problem Oriented Educational Record which was accepted and implemented in the model school district on a regular basis. Checklists and progress chart are included in the appendix. (Author/SM)

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THE PROBLEM ORIENTED EDUCATIONAL RECORD: A SYSTEMS ANALYSIS, DESIGN, AND IMPLEMENTATION PROCESS

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1974

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Educators are accountable for arranging the teaching and learning environment so that every student achieves constant and continuous developmental progress.

The school district wherein this study was conducted is similar to many districts in the United States. The district is semi-suburban and semi-rural and growing.

It is similar also in that many students have one or more problems subsumed under the categories of (1) deficit academic achievement, (2) physical handicaps, and/or (3) social behavioral difficulties. Simultaneously the district has increased the quantity of specialized services available to students; some such services are provided by specialized personnel who are internal to the district's operation and some services provided by external agencies. Such specialized services are provided in the areas of: special education, guidance and counseling, speech, health, reading, physical education, psychological, and social services.

The district is typical also in that while there is no clearly stated policy or program objectives for such services, there is observable evidence that the district desires to provide maximum services to children needing special services so that they may continue to develop. The trend in the district is to provide services to students and teachers that will enable the student to achieve in regular classrooms.

What is also observable is that the processes of identification, referral, diagnosis, instruction, evaluation, and followup are, except in a few instances, unsystematic.

Because these processes are unsystematic it is questionable whether or not the delivery systems between needs and services are being fully maximized. What is apparent is that (1) some children who need services are not receiving them, (2) some children are receiving the wrong service, and (3) most children who receive specialized services rarely receive follow-up evaluation.

During the analysis of these specialized service processes the researchers operated on the following assumptions:

1. The school systems outputs of productivity, morale, integration (between staff needs and organizational needs), and organizational health (organizational survival dependent upon the organizations ability to meet the needs of its environment or community) are dependent upon the quality and clarity of inputs and processing factors in the school system.

2. System outputs are highly dependent upon:

   (a) clearly defined policy and procedures.
   (b) clearly defined role expectations.
   (c) ability to measure and communicate outputs.

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(d) staff involvement in determining policy and objectives.
(e) flexibility of organization to change inputs and processes to maximize outputs and meet new needs.
(f) organizational communications must be systematically designed, both vertically and horizontally, to maximize the coordination and delivery of resources to meet individual needs.

3. Dysfunctions within the processes of a school system usually result in the ineffective use of inputs to produce desired outputs. The processes of a school system are the means by which they arrange or structure expertise, information, and expectations in order to match these resources with the specific needs of students so that students demonstrate continuous academic and social development.

4. The processes or operations of a school district are dependent upon (1) clearly defined roles and functions that subdivide the group task, (2) a clearly defined communications system to insure adequate information by which to perform functions, (3) a clearly defined system of group interaction to carry out tasks assigned to each role, and (4) a defined control system for group operations to insure unity of goal direction.

5. Critical mass necessitates that efforts be concentrated and intensive; if not efforts will be dispersed and lost, and their impact will diminish without effecting important changes.

6. Output or achievement is defined as the outcome resulting from the inputs into the organization and processed through the organization's operational subsystems.

The purpose of the study being discussed was to conduct a system analysis of the manner in which a variety of pupil personnel, instructional, and administrative services are being utilized in order to maximize educational benefits for students in the school district who are experiencing learning difficulties. More specifically the objectives of the study were:

(1) to facilitate the development of consensually desired program objectives for services to handicapped learners.

(2) to develop a data referral system which would include:

a. a referral system for the identification of handicapped learners,
b. specified alternatives for assigning and coordinating referral services, and
c. follow-up systems for periodic evaluation of services provided to handicapped learners.

A secondary purpose of the project was to utilize and evaluate the effectiveness of systems analysis procedures as a means of accomplishing the objectives of the study.

Theoretical concepts derived in general systems theory provide the conceptual framework for this study. Within this context the school district being studied is conceived to be an open system. A system is defined as a set of components (roles or processes) in continuous interaction with one another. Conceptually the school district is viewed as a complex series of interacting human and nonhuman resources that are organized to accomplish desired educational outcomes. For example students, teachers, educational specialists and administrators among others, interact within the structures of the school district in order to facilitate the educational growth of students. The behaviors (tasks, activities, decisions, etc.) of the members of each constituent group have implications for and effect on each of the others, as well as the instructional learning processes within the system.

The school district is viewed as an "open system" to the extent that it functions as an integral part of a larger social environment. Open systems accept and respond to inputs and feedback from other systems within their environment. For example parents, local school board members, governmental agencies, accreditating associations, and other educational institutions have input into the decision making and educational processes of school. In addition there are social, economic, and political forces operating in the environment that effect the internal affairs of the school district. As an open system the school district also serves its societal environment by providing outputs of better educated citizens.

Given the assumptions of an open system any attempt to analyze and understand a school district's program for servicing the needs of students with learning difficulties must take into account variables internal and external to the system. There are four distinct theoretical approaches toward conceptualizing and analyzing open systems according to Immegart.[1]

1. Comprehensive Systems Theories

   These theories focus generally and often subjectively on total, or whole, systems and their obvious components, the components' attributes, and the relationships between the components and their attributes.[2]

2. Process Theories

   Theories of this type are concerned with microscopic analysis and focus on the processing of inputs through subsystems into system output.[3]

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3. Theories of System Properties

These theories represent macroscopic analysis and are derived from the recurring properties and states evinced in the life-space of a wide variety of systems.[4]

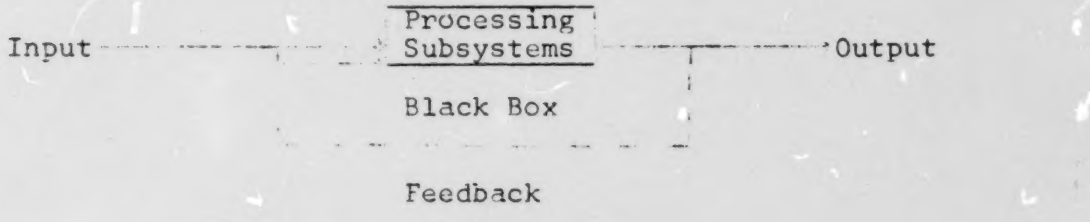
4. Output Theories

Theories of this type focus on the outcomes or products of system action relative to their impact on the system and/or its environment.[5]

After thoughtful consideration of each of these four approaches it was decided that the "process" method of analysis was most appropriate for use in this study for the following reasons. First, the microscopic analytical procedures of this approach offered the greatest probability of obtaining a maximum amount of information regarding the transformation of system inputs into outputs. Second, the outputs were not clearly defined. Finally the process approach would enable the current educational system to be analyzed within a holistic framework and, thereby, provide more detailed information for redesign purposes.

The process approach permits the researcher to analyze the school district as an open system by microscopically identifying the various inputs, processes, and outputs of the system. As Immegart indicates the classic "black box" model graphically communicates the nature of this approach.

Figure 1. Input-System-Output Model

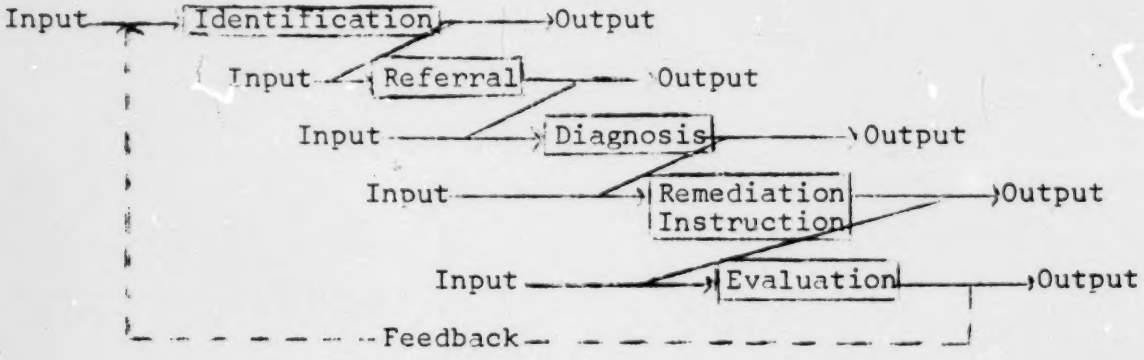


Within this model the system is conceived as consisting of a number of subsystems that process or transform input into output. In terms of the system currently being studied the processing subsystems conceivably might include: (1) identifying handicapped learners, (2) referring them to the appropriate educational specialists or services, (3) diagnosing the nature of their learning difficulties, (4) developing remedial and/or instruction programs for the student, and (5) evaluating the results of such remediation and/or instruction over both short and long range time periods.

The activities included in each of these inter-related subsystem processes is initiated as a result of information input in the form of data about the student and his problems. This

information input is then processed through the respective subsystems where it is transformed into operational behaviors on the part of the student, teachers, educational specialists, etc. The output of each subsequent subsystem and ultimately the total system contributes to the eventual resolution of the student's learning difficulty. Figure 2 presents this process-subsystem flow graphically.

Figure 2. Input-Output Systems Model for Process Subsystems for Service to Handicapped Learners



This "input-process-output" model serves as the conceptual framework for the collection, analysis, and synthesis of the data during each of four phases of the study. In each of the phases discussed below the systems analysts work collaboratively with school district personnel, parents, community groups, and other resource persons in fulfilling the requirements of each phase.

The remainder of this paper will describe the three phases of the project: (1) analysis of the current system, (2) design of a new system, and (3) system testing, modification, and implementation. See Figure 3 for a flow chart of the project.

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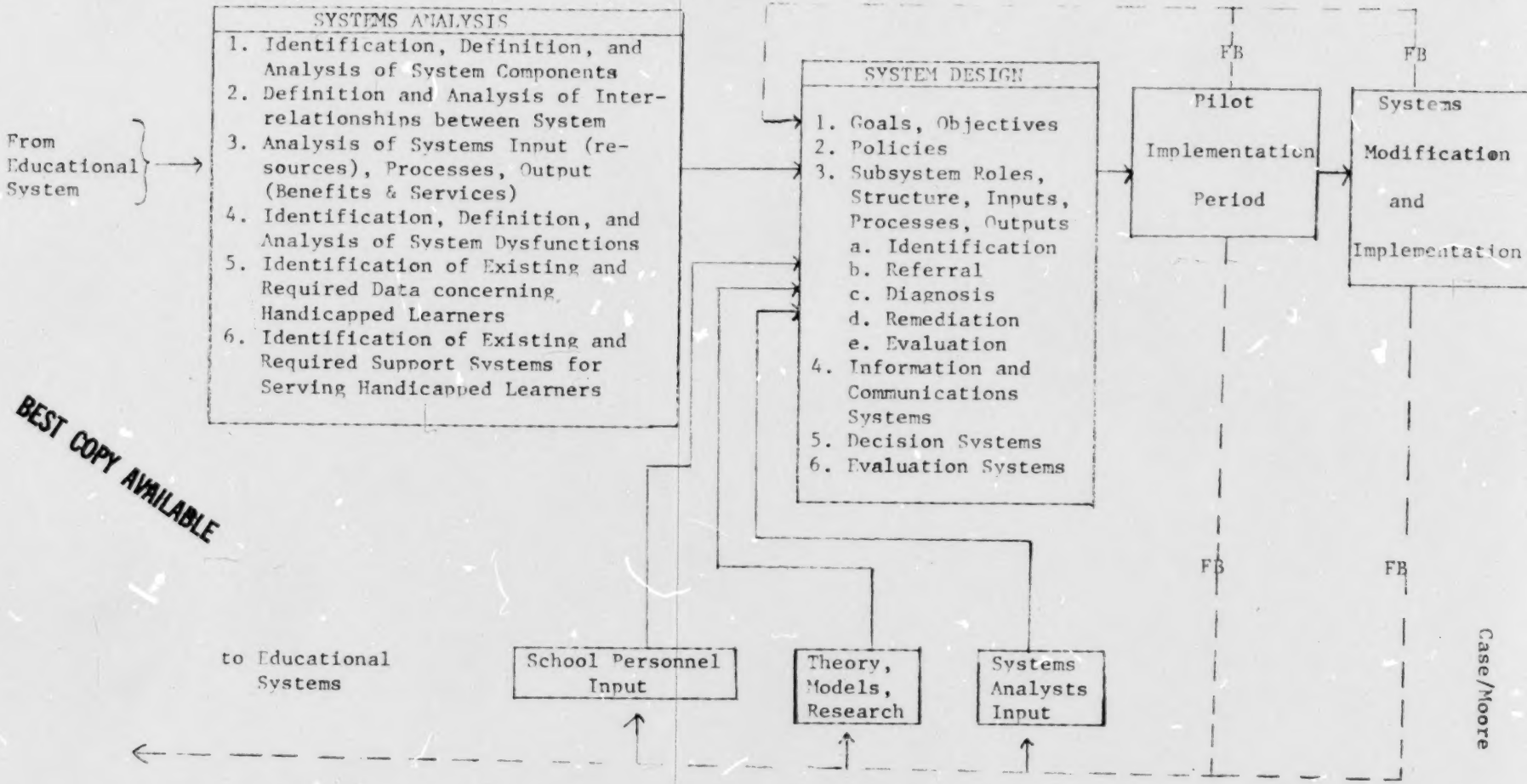
Figure 3 - FLOW CHART FOR SYSTEMS ANALYSIS PROJECT


From Educational System
SYSTEMS ANALYSIS
1. Identification, Definition, and Analysis of System Components
2. Definition and Analysis of Interrelationships between System
3. Analysis of Systems Input (resources), Processes, Output (Benefits & Services)
4. Identification, Definition, and Analysis of System Dysfunctions
5. Identification of Existing and Required Data concerning Handicapped Learners
6. Identification of Existing and Required Support Systems for Serving Handicapped Learners
SYSTEM DESIGN
1. Goals, Objectives
2. Policies
3. Subsystem Roles, Structure, Inputs, Processes, Outputs
a. Identification
b. Referral
c. Diagnosis
d. Remediation
e. Evaluation
4. Information and Communications Systems
5. Decision Systems
6. Evaluation Systems
FB
Pilot Implementation Period
FB
Systems Modification and Implementation
FB
FB
to Educational Systems
School Personnel Input
Theory, Models, Research
Systems Analysts Input

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Phase I - Analysis of Current Systems

A. Purpose

The initial phase of the project was concerned with the collection and analysis of data that described the current operation of special services in the school district. Principles and techniques derived from general systems theory were used to:

(1) identify, define, and describe the components in the special services program with particular emphasis on the interrelationships between the components,
(2) analyze inputs (resources and information) to the various subsystem processes (identification, referral, diagnosis, remediation and evaluation of handicapped learners), and the outputs (educational benefits) of the total system,
(3) identify and analyze various dysfunctions in the system that contribute to the ineffective delivery of support services to students,
(4) identify various kinds of information existing in the school system that was related to the operation of special services and to student achievement and developmental problems, and
(5) identify existing support services for serving handicapped learners with particular emphasis on determining what additional support services are required in order to meet the needs of students.

B. Research Methods

A variety of procedures were used to collect data required to describe the current system for delivering special services to handicapped learners. Procedures used were as follows.

(1) Patterned interviews of key school and non-school resource personnel were conducted. Personnel interviewed included: district and school administrators, classroom teachers, guidance personnel, reading specialists, speech therapists, special educational personnel, school nurses, and consulting teachers.
The content of the patterned interview focused on the interviewees' perceptions of:
   a. school district goals, objectives, policies, and procedures related to the education of handicapped learners,
   b. school district and external personnel roles and functions,
   c. procedures for defining and identifying handicapped learners,
   d. procedures for referring students to appropriate professional resources for diagnosis and remediation,

e. procedures used for evaluating the outcomes of remediation and for conducting short and long range follow-up of students,
f. procedures for collecting, maintaining, and using information related to student achievement and development, and information pertinent to the delivery of special services to handicapped learners,
g. school district communications channels and problems related to the delivery of special services,
h. various system dysfunctions, problems, and failures.

(2) A random sample of case studies of handicapped learners was analyzed in order to gather information that accurately described current practices and system dysfunctions.

(3) A random sample of cumulative records of handicapped and non-handicapped learners was analyzed for the purpose of obtaining comparative information regarding:
a. student demographic and educational characteristics,
b. student achievement and development progress,
c. system responses to students with particular types of problems.

(4) Psychological test batteries currently being used were analyzed, with particular attention to the validity of the relationship between the specific instrument and the purpose for which it was being used in the district.

(5) A random sample of health and medical records was analyzed to determine what information is available.

(6) Standardized achievement tests and procedures were analyzed, particularly the validity of the relationship between the specific instrument and the purpose for which it was being used in the district.

C. Systems Analysis Findings

The results of the systems analysis were classified according to an input-process-output conceptual framework. This approach provided an opportunity to comprehensively describe important components of the system, the interaction between these components, and the significant dysfunctions that existed in the system.

(1) Input Findings

The system under study consisted of a variety of inputs (information and resources) that were processed through an organizational structure to produce outputs that seek to maximize the delivery of special services to handicapped children.

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The inputs emphasized in the analysis were:
a. district policy for handicapped learners,
b. district program objectives for handicapped learners,
c. district definition of handicapped learner, and
d. the means of communicating items 1-3.

The data reported represented only information wherein there was a high degree of consensus or lack of consensus based on a content analysis of the interview responses and analysis of pertinent documentation. Random individual responses were not reported.

Analysis of system inputs indicated: a lack of clearly stated educational policies, goals, and objectives; ineffective communication mechanisms, and a lack of agreement concerning the definition and characteristics of handicapped learners.

Input Analysis: Implications and Recommendations

Organizational outputs are highly dependent upon: clearly defined policy and procedures; clearly defined role expectations; staff involvement in determining program goals and procedures; structural flexibility that permits the change of inputs and processes in order to maximize outputs and meet new needs; organizational communications that are systematically designed, both vertically and horizontally; and maximum coordination and delivery of resources to meet individual needs. Therefore the analysts recommended that a collaborative decision-making process, involving administrators, teachers, specialists, and school board members be used to define and make recommendations to the school board regarding:

1. district policy for handicapped learners, including an extended definition of handicapped learners, and
2. district program objectives for handicapped learners based upon output criteria. Such criteria can be utilized for the identification of handicapped learners, determining the allocation of resources, and program evaluation.

It was further recommended that:

1. policy and objectives for services to handicapped learners be developed, initially without reference to existing resource personnel or financial resources,
2. resources from the Vermont State Department of Education, University of Vermont, and U. S. Office of Education be utilized by the policy and program objectives development committee in their deliberations,

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3. the systems analysts be charged to coordinate and assist the committee, and
4. the committee's tentative conclusions of its deliberations be disseminated to the entire district's staff for consensual validation before being presented to the Board of Education.

Process Findings

Systems and organizations devise structures and processes by which they transform inputs into outputs. The efficiency and effectiveness of the outputs are highly dependent upon the ability to process inputs in such a way as to not dissipate the strength of the inputs.

The purpose of the processes in the system under study was to match specialized inputs with the specific needs of individual students so that the student can experience continuous educational and social progress.

The process factors emphasized in the systems analysis were:

1. school district personnel and external resource persons who participate in the delivery of support services and the specific functions that they perform,
2. procedures for identifying, referring, diagnosing, treating, and evaluating handicapped learners,
3. information and communications networks, and
4. critical information needs of system personnel that were not being met by current procedures.

Process Analysis: Implications and Recommendations

Dysfunctions within the processes of an organization usually result in the ineffective use of inputs to produce desired outputs. The processes of a school system are the means by which they arrange or structure expertise, information, and expectations in order to match these resources with the specific needs of students so that students demonstrate continuous academic and social development.

The processes or operations of a school district are dependent upon clearly defined: (1) roles and functions that subdivide the group task, (2) communications systems to insure adequate information to perform functions, (3) systems of group interaction to carry out tasks assigned to each role, and (4) control systems for group operations to insure unity of goal direction.

Specific recommendations were as follows.

1. Based on program objectives role functions and tasks be defined to accomplish the objectives.

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2. A communications system be clearly defined to insure the transmittal of information to the appropriate sources. Information criteria should be developed to insure that once a handicapped learner is identified that the student is referred to the appropriate source for help. A defined referral system must greatly decrease the current time lags between identification, referral, diagnosis, and instruction. Such a referral system demands valid and reliable information regarding the expertise of resources, identification of needs, and continuing evaluation of the services provided. The current centralized authority system may facilitate record keeping but impede the rapid delivery of appropriate services to handicapped learners.
3. It is essential that the diagnostic process be clearly defined to minimize error in subjective judgment. The validity and reliability of existing standardized testing and diagnostic instruments should be analyzed to determine the appropriateness of such relative to the handicaps being identified.
4. A continuous evaluation and follow-up system to determine the effectiveness of instructional and treatment services provided handicapped learners be implemented.

Output Findings

Output or achievement is defined as the outcome resulting from the inputs into the organization, processed through the organization's operational subsystems. The output factors emphasized in the systems analysis were: (1) evaluation and follow-up of programs, (2) unresolved problems, and (3) staff recommendations.

The principal findings resulting from the analysis of the system's outputs demonstrated the absence of systematic evaluation and follow-up procedures, poorly defined staff roles and responsiblities for evaluation of student achievement, and the absence of evaluation criteria.

The following recommendations emerged:

1. a systematic, continuous evaluation system based on defined objectives is needed to assess the quality and quantity of services provided handicapped learners;
2. clearly defined roles, functions, communications channels, and patterns of coordination are needed to maximize the delivery of services to handicapped learners;
3. early identification criteria and procedures are needed for handicapped learners; and
4. inservice training on handicapped learners should be provided to teachers and administrators once a new system is designed.

Summary

The purpose, procedures, findings, recommendations of the systems analysis (Phase I) were presented to school district personnel in March, 1972, in a written report. The report was discussed thoroughly with the administrative leadership of the district which resulted in the formation of a task force to initiate Phase II of the project.

Phase II - System Design

The operational philosophy of the systems analysts was that their role was to provide district personnel with technical assistance in such a way that district personnel would design and establish a new delivery system for all special services in the district. The analysts and district personnel were in agreement that such analysis and planning would require consensus and commitment within the district if such plans were to become a reality. A district task force established for Phase II included classroom teachers, specialists from each specialty area, principals, and central office administrators.

The primary objective of Phase II was to design a new system (input, processes, outputs) for more effectively and efficiently bringing educational services to handicapped learners. The approach was to be a collaborative effort involving school district personnel, the systems analysts team, selected special education professionals, and other interested and qualified individuals. The new design model was to incorporate the best aspects of the current system as well as new elements that would contribute to a more viable program for handicapped learners. Final decisions regarding the nature of the newly designed system and its ultimate adoption was to be the responsibility of school district personnel.

The design of a new systems model was to be facilitated by addressing the following critical questions.

1. What is the operational definition of a handicapped learner?
2. What are the district's stated mission and general goals regarding services for handicapped learners?
3. What are the specific program objectives for serving handicapped learners?
4. How and by whom are handicapped learners to be identified?
5. What data concerning the behavior of handicapped learners is required for developing a data referral system?
6. What alternatives currently exist for serving handicapped learners?
7. What potential alternatives are there for serving handicapped learners?
8. What specific functions and services are required for serving handicapped learners?
9. How can the identification, referral, diagnostic, instructional, remedial, evaluation, and follow-up subsystems best be operationalized?
10. What is the best system of coordination and communication to maximize services to handicapped learners?
11. What procedures should be implemented in order to evaluate the effectiveness of services to handicapped learners?

12. What follow-up procedures are required for serving handicapped learners?

The task force's first activity was to analyse and discuss the Phase I report. The task force accepted the report without significant modification.

Numerous meetings were held in which the possibility of establishing minimum learning objectives for each grade level was discussed. These discussions helped to clarify the differences in beliefs and attitudes among the district personnel with regard to the delivery of specialized services and with regard to accountability. Various staff members identified with a variety of philosophic positions: behaviorists, humanists, neurologists, etc.

The systems analysts attempted to, at different times, introduce additional information to facilitate agreement among the staff, and to recommend tasks that would help the design process to continue. Attempts were made to formulate a district policy on the delivery of special services, to design sample minimum objectives, and to gather additional information on student needs--all of these efforts continued to be blocked by staff resistance to the issue of minimum objectives. In fact for a period of two months the task force operations completely stopped.

It was decided by the district administrators and systems analysts to attempt to revitalize the task force and to do so by focusing on the subsystems within the special services delivery system. The subsystems focused upon would be (1) identification, (2) referral, (3) diagnosis, (4) remediation, and (5) evaluation. For each of these subsystems the task force would define operational procedures, personnel roles, decision-making criteria and procedures, communication procedures, and evaluation procedures. The task force willingly accepted this charge.

The task force proceeded to further analyse student needs by examining student records and designing a student screening checklist which they pilot tested with a random selection of teachers in each school. They established eligibility criteria for the various service areas. They examined alternative communications and decision-making procedures that could be utilized. At this juncture the task force indicated that they better understood the individual parts of the system that was emerging, but that they were having difficulty conceptualizing and designing the total system. The systems analysts then presented to them a similar system that was being developed in the medical profession. It was decided by the task force that this system could be appropriately modified to fit the needs of the school district. The new design easily incorporated the specific procedures developed to-date by the task force. The new system design was named the Problem Oriented Educational Record System and is described as follows.

Problem Oriented Educational Record

The Problem Oriented Educational Record (POER) is an adaptation of the Problem Oriented Medical Record (POMR) developed by Dr. Lawrence Weed.[7] The POER is an integrated information and organizational system that unifies student information, facilitates systematic decision-making, and coordinates and monitors the delivery of specialized services to individual students.

The POER consists of six sequential phases and appropriate feedback loops. Each phase defines specific procedures for data collection and analysis, communications, and decision-making. The six phases are: (1) establishment of a comprehensive data base on individual students using specific identification techniques and procedures, (2) preparation of problem lists and supporting data, and referral and diagnostic procedures, (3) formulation of specific learning plans, (4) implementaion of progress note system to provide a continuous evaluation and feedback system, (5) activate flow sheet system to interrelate multiple problems, monitor progress, and assess the effectiveness of specialized services, and (6) activation of a periodic chart review system to identify the parts of the system that need improvement.

The POER can be adapted to the individual needs of any school; it is also so designed so that it lends itself to the developmental sophistication of the users.

Meeting the individual learning needs of students so that they may experience continuous positive development requires that educators know where the student is when he or she begins and what goal he or she is seeking to achieve. It is equally important to know where the student is between the two points at any given moment; we cannot, for the student's sake, afford to wait until the end of a long period of time to realize that little or no progress was achieved.

In this process, it is important to have information about the whole child available to us. The child before us is a single unity composed of physical, emotional, intellectual, and social characteristics. Unfortunately society's specialists view the child through their own small window. Therefore, if schools are to serve the whole child, the organizational structure and processes of the school must facilitate the communications among these specialists so that they can contribute their expertise to the child's total development.

Such unified organizational systems demand an integrated information system. The medical profession, a profession not unlike the educational profession, has been faced with the same dilemma: unifying all information about a patient to provide a coordinated delivery system of specialized services. In response to this need, the medical profession has developed

a continuous process termed the Problem Oriented Medical Record System (POMR).

We have modified the POMR specifically to meet the needs of children and to coincide with the information and proposals generated in Phases I and II by the staff of the school district in this study. It is imperative to remember during the description of the Problem Oriented Educational Record System (POER) that the system defines staff patterns of interactive behavior as well as a specific data collection system.

Outline of POER

There are six basic sequential phases in the POER. Each of the phases will be introduced in this section; the next section of the report will thoroughly describe each of the phases.

Phase One - Initial Data Base (Identification)

An initial data base must be established for each student that is identified as possibly needing additional personnel services. This is the identification phase and the beginning of an organic data base that will grow as we learn more about the student.

Phase Two - Problem Lists (Referral/Diagnosis)

Many students have more than one problem at a time; therefore, a problem list is generated for each problem by the appropriate specialist or teacher. These lists are continuously up-dated. In the beginning each problem list consists of the preliminary definition of the problem and whatever supporting information (objective and subjective) that is available on the problem. All problem lists are always available to all specialists, the classroom teacher, and principal so that interactive problems can be diagnosed; for example, an eyesight problem may be the reason for low reading scores. This phase of POER corresponds with the referral and diagnostic processes in the system.

Phase Three - Plan Formulation (Learning and/or Remediation Program)

Each plan will consist of objectives (where will the student be when the problem has been ameliorated), procedures (what exactly will be done by whom and when to accomplish the objectives), and evaluation design (how will we recognize progress as it occurs). These plans are always subject to revision as we receive feedback (responses to the remediation efforts) during the process. New information may require a modification of our original plans.

Phase Four - Progress Notes (Remediation/Evaluation)

It is vitally important that information be collected on remediation effort while they are in progress. The progress notes will include (a) objective data, that is, behavioral measurements and, (b) subjective data, that is, the perceptions of the student, the teacher, the involved specialists, and the parents on the changes that do or do not occur. This data will be analyzed against the criteria established in the objectives.

Phase Five - Flow Sheets

The information generated in phase four is displayed in graphic form for easy identification of the rate and direction of progress that occurs. The teacher, the principal, and the various specialists are able to relate problem areas one to another using the graphic data. Occasionally it may be advantageous to have an outside audit by other specialists regarding the progress data.

Phase Six - Chart Review

Completed POER's provide an opportunity for the principal, the teacher, and the specialists to evaluate their own efforts and to identify problem areas for their own continuing education. Such a feedback process will, over time, assist the staff in deriving better, more specific problem definitions, as well as an assessment of the most effective treatment techniques.

Specific Procedures for POER

Phase One - Initial Data Phase

Objective: To observe and record a student problem(s).

1. The teacher prepares a behavioral definition of the problem(s) based upon any or all of the following data:
   a. classroom observation of behavior,
   b. a drop or plateau in learning achievement,
   c. abnormal health data reported by nurse,
   d. low scoring on standardized tests,
   e. problem report submitted by a district specialist(s) (reading, speech, etc.),
   f. parent concern,
   g. abnormal results of use of periodic classroom observation checklist (see appendix A for the Classroom Observation Checklist developed and agreed upon by the district task force),
   h. periodic review of cumulative record, and
   i. reports and observations of others.

Each definition should as specifically as possible define the problem in behavioral terms (see appendix B for Problem List Form).

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Phase Two - Problem Lists

Each problem list initially consists of the preliminary definition of the problem and all supporting information generated from any or all of the sources indicated in phase one.

The teacher will then meet with the principal to review the problem lists. The principal then sets a date for an initial staffing conference. It is recommended that a permanent staffing conference be established, consisting of one specialist from each speciality in the district. This initial conference includes only the team, the teacher, and the principal.

Phase Three - Plan Formulation

The team decides what additional diagnostic efforts need to be made to further define the problem. This information is recorded in the progress charts.

When the additional diagnostic information (including diagnostic method, results, and recommendations) is received in written form within one week, the team meets with the teacher, the principal, the parents, and, if appropriate, central administration to:

1. define the problem,
2. define the objectives to be achieved when the problem is resolved,
3. select the appropriate specialty(s) to begin remediation,
4. define the treatment procedures to be used,
5. responsibilities are agreed upon-- who will do what, when--teacher, specialist(s) and parents,
6. evaluation methods are agreed upon, including the specific time frames,
7. a communications design is agreed upon: who will communicate what, to whom, when, and
8. all of the above is recorded in the POER under Plan Formulation (see appendix C for the Plan Formulation Form).

Phase Four - Progress Notes

The Progress Notes will be charted daily to indicate student progress based on the measurement criteria agreed-upon in phase three. The Progress Notes will also include weekly observations by teacher, parents, and specialists. (See appendix D for Progress Notes Chart Form.) The emphasis here should be upon behavioral descriptions rather than inferred judgments about behavior. If clearly stated objectives exist measurements that indicate the progress being made will facilitate the reporting.

Phase Five - Flow Sheets

Once a month the data in the Progress Notes will be transcribed into graphic flow sheets so as to visually depict the progress rate and to show the relationship between multiple problems.

The staff conference team will review the flow sheets to determine the discrepancy between plans and progress. If plan modifications are necessary these will be designed and communicated, immediately, to all parties directly affected.

The team decides monthly whether to:

1. continue the plan,
2. modify the plan,
3. reenter the student into normal classroom activity,
4. provide reduced continuing service, or
5. request a new diagnosis.

All such decisions and their corresponding rationale should be noted in the POER.

If the problem(s) is considered ameliorated, the team will design a follow-up evaluation plan of the student's progress to take place once every three months for one year. (See appendix E for Flow Sheet Form.)

Phase Six - Chart Review

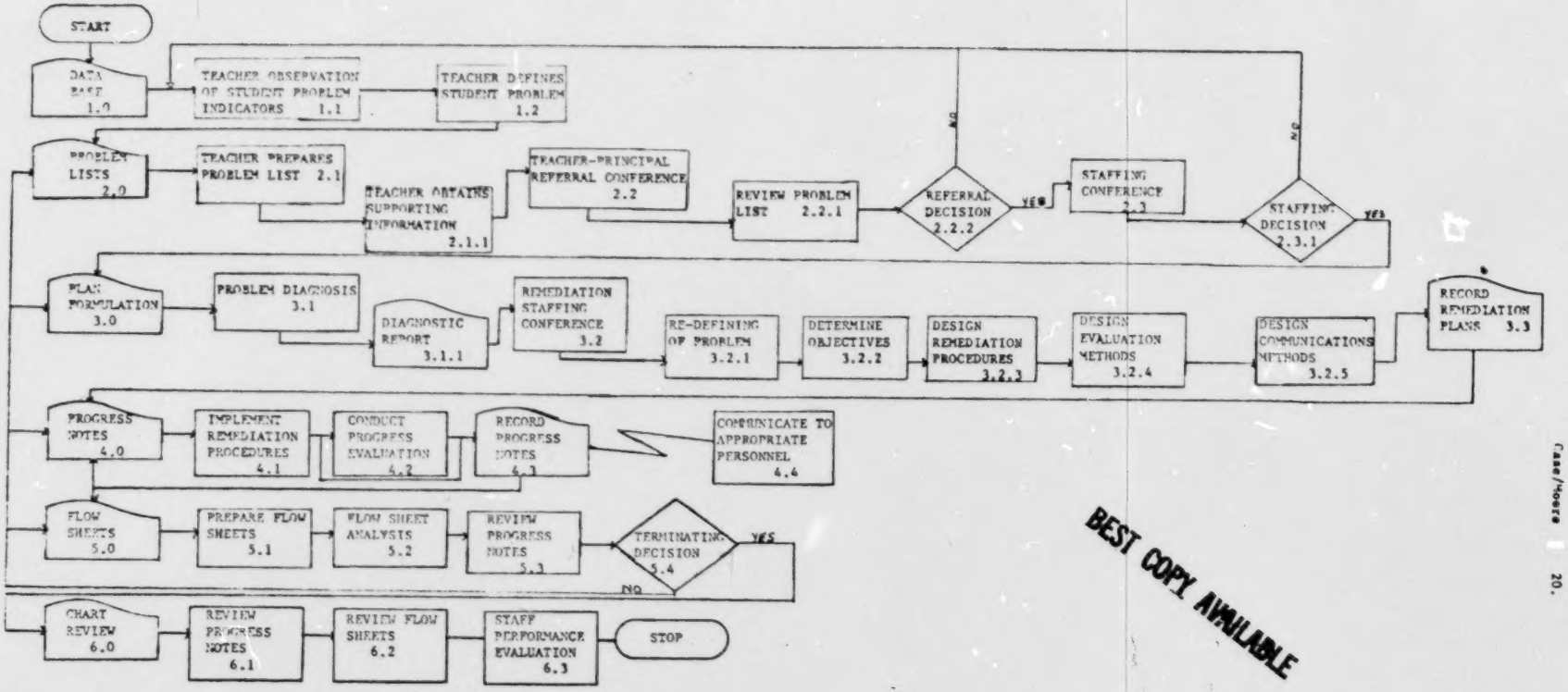
The purpose is to enable staff members to appraise and critique the processes and outcomes of each case. Once every three months the staffing conference team will review all or a random sample of completed POER's to detemine:

1. successful and unsuccessful POER's,
2. inadequate diagnostic services,
3. areas which need better definition,
4. successful and unsuccessful treatment techniques,
5. inadequate evaluation designs, and/or
6. identify inservice needs of teachers, administrators, and specialists.

(See appendix F for Chart Review Checklist.) Figure 4 provides a flow diagram of the entire POER process.

The final section of this paper will describe the procedures used to implement this system in the school district in this study.

Figure 4 - PROBLEM ORIENTED EDUCATION RECORD FLOW



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Phase III - System Testing, Modification, and Implementation

Near the end of Phase II of the study recommendations for a new district policy and procedures for pupil personnel services were submitted to the superintendent of schools and the school boards in the district by the district task force. These recommendations were accepted and implemented. The text adopted read as follows:

THE CHITTENDEN CENTRAL SCHOOL DISTRICT
POLICY FOR PUPIL PERSONNEL SERVICES

The major goals of the educational program of the Chittenden Central District are:

1. To provide a maximum learning experience for each student.
2. To continually assess each student's progress appropriate to his capabilities, needs, and goals.

In order to achieve those goals, it will be the policy of the schools within the Chittenden Central District to subscribe to a Problem Oriented System for Educational Services (P.O.S.E.) which provides a sequence for screening, evaluation, referral, remediation and evaluation of children in need of additional personnel services.

Students in apparent need of additional services will be first identified by broad screening measures as functioning below grade placement level, or below expected levels of performance, as judged by teachers or parents.

Each school will have the specific responsibility for establishing its initial screening procedures within an established time line. Once established, these will become part of the total district policy.

It will be understood that students identified will not qualify for additional personnel services until the first two steps have been fulfilled.

In-school use of additional personnel services for evaluation and staff conferencing purposes will be the responsibility of the principal or his designate. Team staffing with appropriate representation of the various educational disciplines and administrative personnel is encouraged.

Student referral to outside agencies will be channeled through the Chittenden Central District Office, Director of Pupil Personnel Services, to facilitate coordination of services and communication.

> The value of a district system will be realized when used uniformly. To accomplish this, each school will provide sufficient in-service training time, as is necessary to acquaint school personnel with the P.O.S.E. services and criteria for identification.

It should be noted here that the task force changed the name of the new system from the Problem Oriented Educational Record to the Problem Oriented System for Educational Services (P.O.S.E.). This policy, the procedures, and description of P.O.S.E. were sent to all faculty and staff in the district. Appendix G is the P.O.S.E. overview developed by the task force and presented to the faculty and staff. It was also announced at the same time that members of the district task force would work with the faculty in each school to implement the system.

It was at this juncture in the study that the analysts moved to a lower profile role and provided periodic consultation to the two leaders of the district task force. It was the original intent of the developmental process that full participation by the representative task force in the three phases of the study would facilitate the development of faculty and staff commitment to the resulting system adopted. The development process was successful; the faculty and staff were enthusiastic and committed to the results of their labors, and successfully transmitted this commitment to their peers during phase III of the study.

The implementation plan designed by the task force made another significant change from the original plan which was to do a total district implementation in all six schools, rather than a pilot testing phase in one school. It was decided that inservice training would be provided to the faculty as each phase of the P.O.S.E. was implemented. The task force would then work with the staffs in each school to receive immediate feedback on the procedures and use this information to immediately modify the procedures as necessary. This sequence of activities, it was decided, would be phased in during the entire school year so that (1) teachers and staff could be "walked" through the procedures, (2) appropriate inservice education activities could occur at the most appropriate times, and (3) immediate debugging of the procedures could occur.

This process of implementation also allowed the P.O.S.E. system to be modified as necessary for the unique needs of the different schools. Usually such differences occurred due to (1) differences in inservice education needs, (2) differences in the administrative-control needs of principals, (3) differences in existing student information systems existing prior to the implementation of P.O.S.E., and (4) differences in available specialized personnel and programs.

During the implementation phase of P.O.S.E. the task force sought continuous evaluation of and feedback on the system by the teachers and staff in the six schools, and have concluded the following:

1. Teachers and staff have willingly given the additional time necessary to implement and operate the system.
2. Teachers and staff now have much more information on the multiple needs of individual students.
3. Many more students who need specialized services are being identified more often, and the needs are defined more specifically.
4. As experience with the system accumulates teachers and staff become better at writing behavioral descriptions of problems and treatment plans.
5. The introduction to the system by peers to small groups has continued to be highly valued by the teachers. Teachers have had the opportunity to fully explore their questions and concerns. Peer acceptance has provided consensual validation of the system and momentum for its implementation.
6. Teacher and staff participation in designing the screening checklist has made it highly acceptable to the teachers. Previous attempts to introduce such a procedure in the district had been rejected by teachers.
7. The P.O.S.E. system has clarified the roles, functions, and communications patterns among specialized personnel, and among specialized personnel, teachers, and administrators.
8. Staffing conferences have allowed different perspectives of staff on specific problems to be more clearly defined.
9. It has been decided that the P.O.S.E. system needs an additional checkpoint prior to staffing conferences to determine if any additional information is needed and available; possibly an information checklist is needed for such a purpose.
10. The system is also providing a data base for determining staff hiring requirements based on the specific skills needed to meet specific student needs.
11. Teachers perceive the inservice education program to be more useful than in the past due to (1) the close relationship of the training to the teachers' immediate needs, and (2) the instruction being provided by their peers.
12. The district is building a data base generated from the P.O.S.E. system which will be used to (1) analyse the patterns of student needs, (2) analyse different diagnostic and treatment methodologies, (3) analyse the effects of P.O.S.E. on the curriculum, (4) determine staff development needs, and (5) evaluate the P.O.S.E. system on an annual basis.

Conclusion

Systems planning and management techniques have been combined with group organizational development techniques to consensually analyse, design, and implement a Problem Oriented

Educational Record System for students with special needs in a total school district. The POER is an integrated information and organizational system that unifies student information; facilitates systematic decision-making; provides coordinated communications and management among specialized personnel, teachers, and administrators; and coordinates and monitors the delivery of specialized services to individual students.

The POER can be adapted to the individual needs of any school; it is also designed so that it lends itself to the developmental sophistication of the users.

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APPENDICES

APPENDIX A

I-1

KINDERGARTEN AND/OR FIRST GRADE CHECKLIST

CONFIDENTIAL

Child's Name_____ Age_____ Grade_____ Date_____

School_____ Teacher Making Evaluation_____

According to school records this child has been seen by following agencies or physicians. Please note date.

Please list names of school specialists who have seen child and date:

This check list should be used at designated times to evaluate the progress of children beginning school. Please check ( ) to indicate agreement. Compare child's behavior with others of his age. Please feel free to make comments when necessary. Some items should be omitted in October, as indicated.

General Behavior

	October	January	March
1. Does child attend school readily and happily?			
2. Does he follow verbal directions?			
3. Does he appear awkward? i.e., poorly co-ordinated			
4. Does he frequently repeat words, actions or questions?			
5. Does child appear confused by school or school routine?	omit		
6. a. Does he appear to lack confidence?			
b. Does he seem to have a poor self image?			
7. Does he seem to have difficulty developing peer relationships?			
8. Does he find it difficult to cope with authority?			
9. Does he forget things frequently?	omit		
10. Does he have an air of general untidiness? (clothes undone, messy desk, etc.			

	October	January	March
11. Does he frequently make inappropriate responses in social and academic situations?			
12. Does he appear to be hyperactive? (Teacher comments):			
General Physical Behavior (Some questions in this section may be answered yes or no.)			
1. a. Is he righthanded?			
b. Is he lefthanied?			
c. Ambi-dextrous?			
2. Can he skip?			
3. Can he walk backwards?			
4. Can he catch a ball?			
5. a. Can he color in lines?			
b. Can he write in lines?			
6. Can he dress himself independently?			
7. Does he fidget or exhibit nervous mannerisms? Please list.			
8. Does child make frequent trips to bathroom?			
9. Does child appear listless or fatigued?			
10. Does child speak in odd voice? Describe:			
11. Does child breathe through the mouth? Comments:			
12. Can child hop on one foot?			
13. After instruction, is he able to hold pencil or crayon correctly?			
Academic Behavior			
1. Does he make reversals and/or inversion of letters, words, or	omit		

	October	January	March
2. Can he identify basic colors?			
3. Does he have problems with decoding and word attack skills?	Omit		
4. Does this child have good decoding skills and poor comprehension?	Omit		
5. Is his handwriting poor?	Omit		
6. Does this child persist in repeating errors after correction?			
7. Is he well organized at work and play activities?			
8. Does this child have poor listening skills? (Can he discriminate letters, sounds, words)			
9. a. Can he count to 10?			
b. Can he recognize quantities to 5?			
10. Can he relate a story in proper sequence?			
11. Does the child seem interested in school and school activity?			
a. academic			
b. social			
12. Is the child able to relate a coherent story of a quality comparable to his classmates?			
13. Is he able to listen to a story attentively?			
14. Does he speak in complete sentences?			
15. Does child squint or hold book too closely? (or exhibit discomfort when reading)			
16. Does he seem able to concentrate on independent work a reasonable length of time?			
17. Can he point to body parts and name them correctly?			

	October	January	March
19. Does he have directional concepts (left, right)?	Omit		
20. Can he draw a man and include basic body parts?			
General Emotional Behavior			
1. Does the child exhibit impulsive behavior?			
2. Does he have a low tolerance for frustration?			
3. Is he a loner?			
4. Does he appear to hide his feelings?			
5. Does he prefer to watch rather than participate?			
6. Is he very self conscious?			
7. Does he seem unwilling to defend himself or his ideas?			
8. Is he truthful?			
9. Is he morbid?			
10. Does he respect property of others?			
11. Is this child a bully?			
12. Is he disruptive?			
13. Is this child overly dependent?			
14. Is he quarrelsome?			
15. Does he display self-control?			
16. Does he appear to be fearful or anxious?			
17. Does child show initiative in work or play?			
18. Does child seem able to share materials with others?			

School Nurse's Observations:

Eyes:

Ears:

General Health:

Physical Education Teacher's Observations:

CHECKLIST FOR GRADES 2-8

CONFIDENTIAL

II-1

Child's Name_____ Age_____ Grade_____

School_____ Teacher Making Evaluation_____ Date_____

According to school records this child has been seen by the following agencies (and physicians). Please note date:

Please note names of school specialists who have seen child (and date):

This check list can be used to evaluate children from grades 2 to 8. A few items will be more relevant to some grade levels than others. Disregard items that do not apply. Evaluate the child by comparing his behavior with that of other youngsters of his age and grade. You may add whatever comments seem appropriate. You may use reverse side of these sheets for your comments.

General Behavior	Consistently	Occasionally	Never
1. Does child attend school readily and happily?			
2. Does he follow verbal directions?			
3. Does he appear awkward? (i.e., poorly co-ordinated)			
4. Does he frequently repeat words, actions or questions?			
5. Does child appear confused by school or school routine?			
6. a. Does he appear to lack confidence?			
b. Does he seem to have a poor self image?			
7. Does he seem to have difficulty developing peer relationships?			
8. Does he find it difficult to cope with authority?			
9. Does he forget things frequently?			

	Consistently	Occasionally	Never
10. Does he have an air of general untidiress? (clothes undone, messy desk, etc.)			
11. Does he frequently make inappropriate responses in social and academic situations?			
12. Does he appear to be hyperactive?			
General Physical Behavior (Some questions in this section may be answered yes or no)			
1. a. Is he righthanded?			
b. Is he lefthanded?			
2. Can he skip?			
3. Can he walk backwards?			
4. Can he catch a ball?			
5. a. Can he color in lines?			
b. Can he write in lines?			
6. Can he dress himself independently?			
7. Does he fidget or exhibit nervous mannerisms? Please list.			
8. Does child make frequent trips to bathroom?			
9. Does child appear listless or fatigued?			
10. Does child speak in odd voice? (too high, low, nasal, etc.) Comments:			
11. Does child breathe through the mouth? Comments:			

Academic Behavior	Consistently	Occasionally	Never
1. Does he make reversals and/or inversions of letters, words, or numbers in reading and writing?			
2. Does he make gross spelling errors?			
3. Does he have problems with decoding and word attack skills?			
4. Does this child have good decoding skills and poor comprehension?			
5. Is his handwriting poor?			
6. Does this child persist in repeating errors after correction?			
7. Is written (independent work) poorly organized?			
8. Does this child have poor listening skills? (Can he discriminate letters, sounds, words?)			
9. Does this child have poor time awareness? (Never knows day, month, year, can't name days, etc.)			
10. Can he relate a story in proper sequence?			
11. Does the child seem interested in school and school activity:			
a. academic			
b. social			
12. Is the child able to create and put on paper a coherent story of quality comparable to his classmates?			
13. Is this child willing to ask questions about things he doesn't understand?			
14. Does child squint or hold book too closely? (or exhibit discomfort when reading?)			
15. Does he seem able to concentrate on one thing for a reasonable length of time?			

II-4

General Emotional Behavior

	Consistently	Occasionally	Never
1. Does the child exhibit impulsive behavior?			
2. Does he have a low tolerance for frustration?			
3. Is he a loner?			
4. Does he appear to hide his feelings?			
5. Does he prefer to watch rather than participate?			
6. Is he very self-conscious?			
7. Does he seem unwilling to defend himself or his ideas?			
8. Is he truthful?			
9. Is he morbid?			
10. Does he respect property of others?			
11. Is this child a bully?			
12. Is he disruptive?			
13. Is this child overly dependent?			
14. Is he quarrelsome?			
15. Does he display self-control?			
16. Does he appear to be fearful or anxious?			

Teacher coments:

School Nurse's Observations:

Eyes:

Ears:

General Health:

Physical Education Teacher's Observations:

APPENDIX B

PROBLEM LIST

STUDENT NAME:_____ SCHOOL:_____

ADDRESS:_____ GRADE:_____

AGE:_____ SEX: M___ F___ DATE:_____ CLASSROOM:_____

STAFF MEMBER:_____ POSITION OF TITLE:_____

INSTRUCTIONS

For each of the list below enter the appropriate data. The rater prepares a behavioral definition of the problem(s), each definition should be as specific as possible. Define the problem(s) in behavioral terms based upon any of the following data:

1. Classroom behavior (describe)

2. Changes in rate of learning progress (describe changes)

3. Significant health data (explain)

4. Standardized test results

5. Report of Special Services Personnel (reading, speech, etc.)

6. Parent concern (explain)

7. Results of periodic classroom observation checklist

8. Periodic review of cumulative record

9. Additional Information (comments from other staff members, outside agencies, etc.)

Action Taken:

Teacher/principal meeting date: _____

Initial staffing conference date: _____

Recorded by: _____

Participants: _____

_____

_____

_____

APPENDIX C

PLAN FORMULATION LIST

STUDENT A E:_____ SCHOOL:_____

ADDRESS:_____ GRADE:_____

AGE:_____ SEX: M___ F___ DATE:_____ CLASSROOM:_____

STAFF MEMBER:_____

INSTRUCTIONS

When the additional diagnostic information is received in written form within one week, the team meets with the teacher, the principal, the parents, and, if appropriate, central administration to:

1. Define the problem

2. Define the objectives to be achieved when the problem is resolved

3. Select the appropriate personnel to begin remediation

4. Define remediation procedures:

5. Define responsibilities--who will do what, when--teacher, special services personnel, and parents.

6. Define evaluation methods agreed upon, include specific time frames

7. Define communications design: (who will communicate what to whom when)

Recorded by: _____

Participants: _____

_____

_____

---

8. Review and evaluation of educational treatment--continue or alter.

APPENDIX D

PROGRESS NOTES CHART

STUDENT NAME: _____ SCHOOL: _____

ADDRESS: _____ GRADE: _____

AGE: _____ SEX: M___ F___ CLASSROOM: _____

DATE & NAME OF OBSERVER	CRITICAL INCIDENT (DESCRIBE BEHAVIOR)	OUTCOME	OTHER REMARKS

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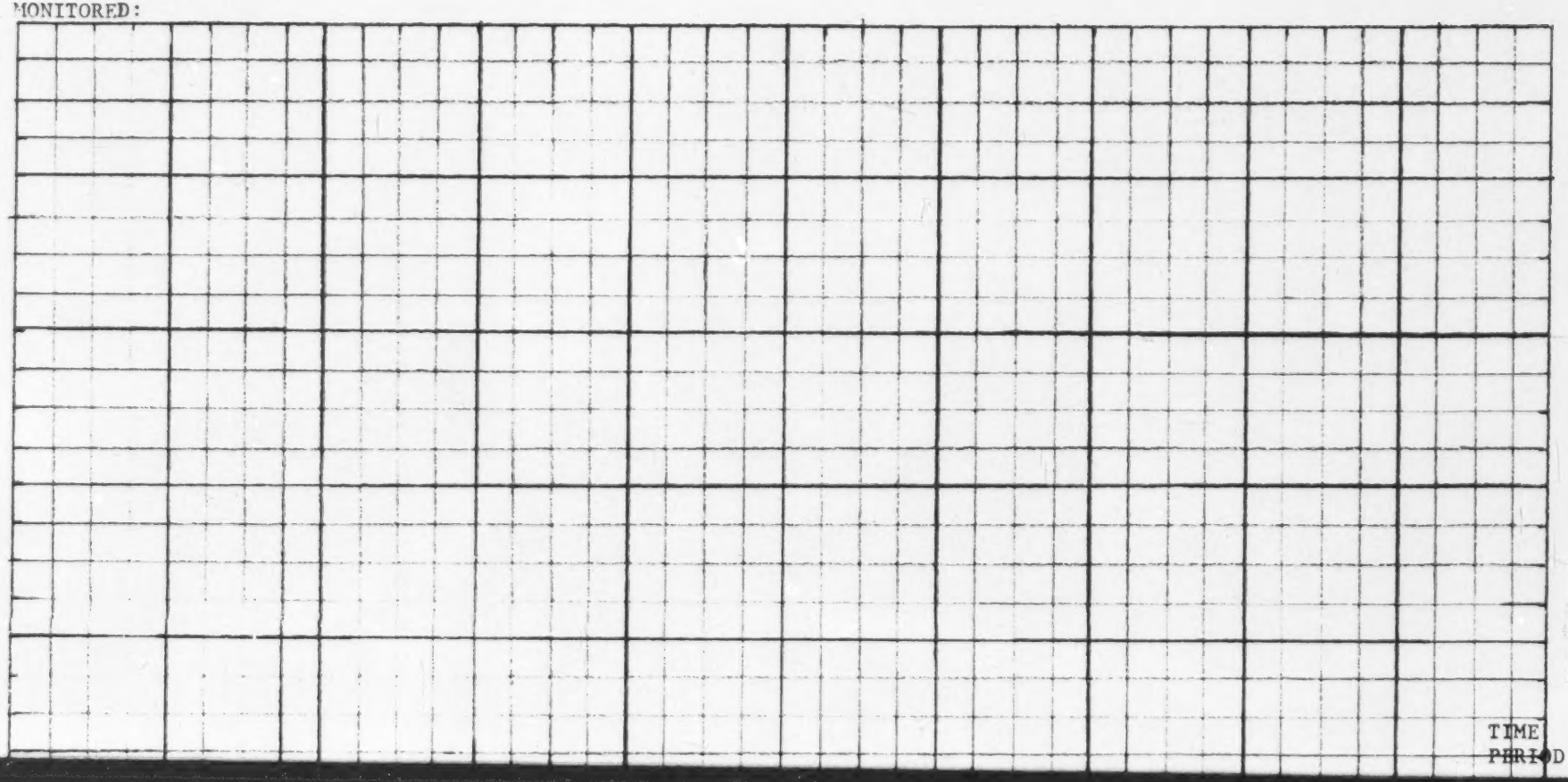
APPENDIX E

FLOW CHART

STUDENT NAME: _____ SCHOOL: _____
ADDRESS: _____ GRADE: _____
AGE: _____ SEX: M___ F___ DATE: _____
POSTED BY: (NAME DATE) _____, _____, _____

The rater is to display the rate and direction of progress (or lack of) that occurs in a specific problem area. For selected time periods record level of change in problem area.
PROBLEM AREAS: _____

BEHAVIOR BEING MONITORED:



APPENDIX F

CHART REVIEW
CHECKLIST

STUDENT NAME:_____ SCHOOL:_____

ADDRESS:_____ GRADE:_____

AGE:_____ SEX: M___ F___ DATE:_____

STAFF MEMBER:_____, _____

_____,_____, _____

INSTRUCTIONS

The Chart Review Checklist is used to appraise or critique the processes and systems used by staff. Once every three months the staffing conference team will review completed POER's to determine current status and if changes, alterations, or additions are needed for any of the following:

1. POER's successful and unsuccessful

2. Diagnostic services, strengths and weaknesses

3. Problems which need better definition

4. Remediation techniques, successful and unsuccessful

5. Evaluation designs, adequate or inadequate

6. Inservice needs of teachers, administrators and specialists as indicated by evaluation of 1-5.

APPENDIX G

PROBLEM ORIENTED SYSTEM FOR EDUCATIONAL SERVICES (P.O.S.E.)

Step 1. Identification →
- a. Achievement Test Analysis → Teacher observation and use of checklist.
- b. Grade 1 or entrance screening.

◊

Step 2. Tentative Definition of Problem →
- a. Teacher checklist plus supporting information reviewed by reporting → Decision for staffing. (b.)

◊

- b. In-house staffing with appropriate personnel.

Decision:
1) in-house remediation (to Step 4.)
2) in-house evaluation (to Step 3.)
3) referral to outside agency (to Step 3.)*

- c. Record action taken.
- d. Determine schedule of parent contact.
- e. Plan schedule of review and evaluation.

Step 3. Diagnosis → Accumulate diagnostic information. → Remediation staffing to determine:

◊

1) problem identification.
2) procedure for remediation.
3) evaluation and review.
4) communication system.
5) recording system.

Step 4. Educational Treatment → Implementation of remediation procedures. → recorded appropriately and reviewed as scheduled.

◊

Step 5. Evaluation → Team review of student progress. → decision for: continuation or alteration in plan.

◊

Step 6. P.O.S.E. Review → Evaluate effectiveness of individual school's system and as related to district system → decision for: continuation of system or alteration.

*to be channeled through C.C.D. office - Director of Pupil Personnel